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HUMANISTIC ORIENTATION AS AN INTEGRAL COMPONENT OF FUTURE BIOTECHNOLOGISTS' PROFESSIONAL TRAINING

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On the basis of studies of theoretical positions of humanistic aspects of biotechnology in the scientific sources it is substantiated the need of the formation of future biotechnologists' humanistic orientation as an integral part of professional activities of future specialist. It was found that the formation of humanistic orientation in professional training must have their own characteristics taking into account the activities, for which future specialist prepares. Therefore, the features of biotechnology as a scientific practice are considered. It is analyzed the prerequisites of humanization of the professional activity of specialists in this sphere and identified humanist bases of biotechnologist activities.

Keywords: humanistic principles, future biotechnologists, professional activities, agriculturul industry.

Мишак О.О. Гуманістична спрямованість як невід'ємний компонент професійної підготовки майбутніх біотехнологів/ Національний університет біоресурсів і природокористування України, Київ

У статті на основі досліджень теоретичних положень гуманістичних аспектів біотехнології в наукових джерелах обґрунтовано потребу у формуванні в майбутніх біотехнологів гуманістичної спрямованості як невід'ємної складової професійної діяльності майбутнього фахівця. Установлено, що процес формування гуманістичної спрямованості у професійній підготовці повинен мати свої особливості, з огляду на види діяльності, до яких готується майбутній фахівець. Зважаючи на це, розглянуто особливості біотехнології як науково-практичної діяльності, проаналізовано передумови гуманізації професійної діяльності фахівців цієї сфери та визначено гуманістичні засади діяльності біотехнологів.

Ключові слова: гуманістичні принципи, майбутні біотехнологи, професійна діяльність, аграрна галузь.

Мышак Е.А. Гуманистическая направленность как неотъемлемый компонент профессиональной подготовки будущих биотехнологов/ Национальный университет биоресурсов и природопользования Украины, Киев.

В статье на основе исследований теоретических положений гуманистических аспектов биотехнологии в научных источниках обоснована необходимость в формировании у будущих

биотехнологов гуманистической направленности как неотъемлемой составляющей профессиональной деятельности будущего специалиста. Установлено, что процесс формирования гуманистической направленности в профессиональной подготовке должен иметь свои особенности, учитывая виды деятельности, к которым готовится будущий специалист. В святи с этим рассмотрены особенности биотехнологии как научно-практической деятельности, проанализированы предпосылки гуманизации профессиональной деятельности специалистов этой сферы и определены гуманистические основы деятельности биотехнологов.

Ключевые слова: гуманистические принципы, будущие биотехнологи, профессиональная деятельность, аграрная отрасль.

Introduction. Due to the rapid changes in all spheres of life, especially in education, the problem of training specialists for various industries at higher education institutions is a question of urgent importance. The growing practical need for new technologies designed to eliminate the shortage of food, energy, mineral resources, improve the health and the environment cause advance of biotechnologists' training.

Attention should be paid to the fact that that further technological advances in the human development can be carried out only under conditions of the moral society creation. Technologies can not be considered in the isolation from the entity who will use them (or who arises to use them), therefore the question of humanistic orientation of biotechnologists professional training is actualized.

The analysis of the scientific literature. The issue of training specialists in biotechnology has been researched by foreign scholars B. Albers, J. Labov, J. Granger, W. Dawson, R. Dobert, P. Narasimharao, J. Rossou, K. Soames, S. Salvado, M. Kazanoves, M. Novo, R. Tomson, and in the theory and practice of domestic professional training the question has been elucidated only by N. Ridey, L. Rytikova.

The analysis of scientific literature showed that the issue of future biotechnologists' training hadn't been developed sufficiently in theory and practice of vocational education and the problem of forming humanistic orientation of future biotechnologists had never been the subject of research.

The purpose of the article is to analyze the humanistic principles of professional activities in the field of biotechnology and substantiate the need for the formation of future biotechnologists' humanistic orientation during training.

Presentation of the main material. Today the development of biotechnology is one of the main areas of scientific and technological progress. Biotechnology is becoming an integral part of all spheres of life. However, all achievements in this field of science should be based on noosphere thinking, human values, protection of an individual from the negative effects of the use of biotechnology.

Analysis and philosophical understanding of the history of formation and development of biogenous technologies have been conducted by such scientists, as

J. Rossou, S. Svetlov, L. Sidorenko, V. Soifer, P. Tishchenko, L. Udovika, O. Chumak, Y. Habermas, J. Fayndhold, F. Fukuyama, H. Shumberh, B. Yudin and others. They tried to analyze the nature and the importance of biotechnology in human life in detail. They emphasize that despite the enormous possibilities of biotechnology to help people in difficult environmental situation its development is unpredictable. The results can be directed against a person [6, p. 96].

According to the researcher S. Svetlov, "the paradox of technologies in general is that they are, on the one hand, provide the most favorable prospects for the results of their use (increasing productivity, treatment of diseases, quality of life, etc.) and on the other hand, they offer the possibility of implementing the most sinister plans and fantasies. Everything in the world of technology is manifested in two ways, all technologies can be implemented in two ways – for good or for evil. In this respect we can not attribute to the technologies a positive or negative sign. All they are initially ambivalent, they carry both positive and negative potential. Only man himself chooses which of these potentials will be realized. Critics of biotechnology and critics of scientific and technological progress in general should know and understand this axiom very clearly. Science and technologies themselves can not be "anti-human" or "against society." Only man himself and only society itself use science and technologies against themselves [4, p.165].

Modern scientific and technical progress necessitates a general awareness of the fact that further advances in the technology of human development are possible only under the conditions of the moral society creation. The technological powers of man are so significant. If they get into evil hands, not only big local and even global catastrophe will become possible. In this plan biotechnology provides good examples: even an immoral single person who has the latest biotechnological methods can potentially cause a global biocatastrophe [7, p.187].

Thus, the analysis of contemporary philosophical and ethical, social and philosophical literature shows that despite the high technologically evaluation of biotechnology the main question is its humanistic content. So, the tendency to unity of research instructions and their humanistic

orientation has to realize in developing biotechnological research, in biological knowledge.

In view of this, let us consider the specifics of the biotechnological area, which is presented in two forms of activity: 1) in the form of scientific activity, carried out by scientists-biotechnologists; 2) in the form of practice or technological process in the production which involves experts from biotechnology (biotechnologists, genetic bioengineers, bioprocess engineers, bioengineers of cell and tissue, engineers of restoration of natural ecosystems, biotechnologists of pharmaceutics).

The product of scientific work of biotechnologists is knowledge of biotechnology. Work of a scientist-biotechnologist is characterized of general nature and related to the production of special product – knowledge of methods, techniques and technologies of biosynthesis. In biotechnology man acts like a natural force, changing and creating different forms of life. Scientific activity obtains characteristics of engineering and production activities being a form of spiritual production. Different areas of bioengineering help to become a biotechnologist essentially a designer of new organisms or new relationships between them. However, noting a similarity of bioengineering stage with other areas of engineering, we can not see their significant differences. In the case of biotechnology researchers and practitioners deal with the world of living. It imposes some restrictions and prohibitions on practical activities.

The nature and direction of biotechnologist's activity have their specific characteristics. Qualification of a biotechnologist envisages a high level of special scientific knowledge, a broad outlook in modern achievements of world science, high skills of an experimenter, originality of a scientific thought. A specialist in the field of biotechnology must be professional, able to combine complex research, design and commercial activities, oriented on creating highly efficient structures stimulating the growth and the development of various spheres of social and economic activities [3, p. 29]. As a whole, a subject of biotechnology performs an important social role – not only make life more comfortable, but also convert all human being directly. Project activity of a subject of biotechnology is directed on creating appropriate models in biotechnology and the principles of bioethics. In this regard, it is especially important humanistic ideals formed in the minds of scientists-biotechnologists. Humanistic ideals are connected with the recognition of the life value, the affirmation of the principle "reverence for life" advanced by A. Schweitzer [1, p.16].

Analyzing the activity of a subject of biotechnology, we have come to the conclusion that the main characteristics and his features are: common goals and humanistic orientation of activity, professionalism, mastery of experience, skills, and abilities in this field. These characteristics are reflected in the spiritual and personal qualities. They are manifested in

professional knowledge, communication, language, ideals and consciousness of scientists-biotechnologists.

The transition to an information society raises new challenges to the nature and quality of professional activity of highly qualified specialists, especially for the agricultural field. In the new environment it is necessary a new professional, social and psychological model of a biotechnologist-humanist, who is not only able to manage skillfully and use of modern biotechnology, but also has a high moral character, sense of responsibility before the society for "the cultivation of genetically modified organisms, accumulation of carcinogens and harmful mutations; experiments involving genetic code alteration, posing a threat to humans not only in local but also a global dimension" [5, p.11].

Professional activities of a biotechnologist in the agricultural field has to be determined by several factors: ethical, psychological, aesthetic and so on. The value aspects, for what a biotechnologist of the agricultural sector is responsible, include the following:

- human health is defined as the most important value. Food crop and livestock produce should not pose a danger to human health. It is necessary to abandon from harmful agricultural technologies due to research and assessment of the impact of professional activities.

- agricultural activities should be combined with the surrounding natural environment.

The moral relationship to nature includes humanistic aspect, based on the understanding that the damage to the environment is an equivalent to the harm caused to future generations of people.

- everything that happens in agriculture is directly or indirectly related to the individuals whose work is defined conscious or unconscious intentions, values which are occupied a dominant position at the present stage of social and technological development. Business results in agriculture should be attached to the actions and intentions of the actual people.

Consequently, activity of a biotechnologist in agriculture on the humanistic base involves the following principles:

- professional activity for the benefit of the society;
- preservation of biological authenticity of nature as such in the terms of scientific and technological progress and development of genetic engineering;
- creation of safe conditions of social life;
- avoiding the use of agents and technology that may have negative effect on human health;
- risk prevention by means of the use of biotechnology;
- prediction of consequences of the use of biotechnology;
-improving the quality of agricultural products, methods of production and processing [2, p.104].

Focusing on the above, it can be argued that the activities of a biotechnologist in agriculture should be humanistic oriented. It means that the main measure of his activity is the welfare of people. To achieve this purpose educational process is to form students certain qualities, positive attitude to the responsibility and duty to the state. Vocational training at high school should have a close relationship with professional orientation of an individual, with the formation of a specific system of values inherent to the representatives of the biotechnology field.

Conclusions. So, formation of humanistic orientation of an identity is the particular importance for a biotechnologist professional training because it is an integral part of professional activity of future specialists and humanistic trends in biotechnology determine its important role. It should be emphasized that the importance of humanistic orientation of professional activities of biotechnologists essentially is higher than for the vast majority of other professions.

Thus, the humanistic principles of professional activities of biotechnologists in agriculture and modern requirements for the individual of biotechnology actualize the need for forming humanistic orientation of future specialists in their training. The theoretical position of the essence, the features of activities of biotechnologists are fundamentals for the development of theoretical and methodological, methodological and technological aspects of the problem research of forming humanistic orientation of future biotechnologists.

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